AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A method for invalidating a resource record in a local cache at a client computer system within a network, comprising:

retrieving the resource record from the local cache at the client;

issuing one or more queries for the resource record;

waiting for a response to the query; and

if the response to the query is not received in a pre-determined amount of time and after issuing a predetermined number of queries for the resource record, invalidating the resource record at the client.

2 (Canceled).

3. (Original) The method of claim 1, further comprising:

receiving a multicast message from a second client querying a second device;

locating a second resource record associated with the second device;

waiting for a multicast response to the multicast query; and

if after a pre-determined number of queries the multicast response to the multicast query is not received in the pre-determined amount of time, invalidating the second resource record.

4. (Canceled)

5. (Original) The method of claim 1, wherein if the response to the query is not received in a pre-determined amount of time, the method further comprises:

retrieving a parent record of the resource record at the client, wherein the parent record refers to the resource record;

issuing a query for the parent record;

waiting for a response to the query from the device; and

if the response to the query is not received in a pre-determined amount of time, invalidating the parent record, and then repeating the above process by applying it recursively to any records that refer to the now-invalidated parent record.

6. (Original) The method of claim 1, wherein if the response to the query is not received in a pre-determined amount of time, the method further comprises:

retrieving a parent record of the resource record at the client, wherein the parent record refers to the resource record;

issuing a query for the parent record;

receiving a response to the query from the device, wherein the response includes information for updating the resource record; and

updating the resource record with the information received in the response.

7. (Original) The method of claim 6, wherein the method further comprises updating the parent record with the information received in the response.

8. (Original) The method of claim 1, wherein the method is invoked at a pre-specified time interval.

9. (Previously Presented) A computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for invalidating a resource record in a local cache at a client computer system within a network, the method comprising:

retrieving the resource record from the local cache at the client;

issuing one or more queries for the resource record;

waiting for a response to the query; and

if the response to the query is not received in a pre-determined amount of time and after issuing a predetermined number of queries for the resource record, invalidating the resource record at the client.

10 (Canceled).

11. (Original) The computer-readable storage medium of claim 9, wherein the method further comprises:

receiving a multicast message from a second client querying a second device;

locating a second resource record associated with the second device;

waiting for a multicast response to the multicast query; and

if after a pre-determined number of queries the multicast response to the multicast query is not received in the pre-determined amount of time, invalidating the second resource record.

12. (Canceled)

13. (Original) The computer-readable storage medium of claim 9, wherein if the response to the query is not received in a pre-determined amount of time, the method further comprises:

retrieving a parent record of the resource record at the client, wherein the parent record refers to the resource record;

issuing a query for the parent record;

waiting for a response to the query from the device; and

if the response to the query is not received in a pre-determined amount of time, invalidating the parent record, and then repeating the above process by applying it recursively to any records that refer to the now-invalidated parent record.

14. (Original) The computer-readable storage medium of claim 9, wherein if the response to the query is not received in a pre-determined amount of time, the method further comprises:

retrieving a parent record of the resource record at the client, wherein the parent record refers to the resource record;

issuing a query for the parent record;

receiving a response to the query from the device, wherein the response includes information for updating the resource record; and

updating the resource record with the information received in the response.

15. (Original) The computer-readable storage medium of claim 14, wherein the method further comprises updating the parent record with the information received in the response.

16. (Original) The computer-readable storage medium of claim 9, wherein the method is invoked at a pre-specified time interval.

17. (Previously Presented) An apparatus that invalidates a resource record in a local cache at a client computer system within a network, comprising:

a retrieval mechanism at the client configured to retrieve the resource record from the local cache at the client; and

an invalidation mechanism configured to,

issue one or more queries for the resource record,

wait for a response to the query, and

if the response to the query is not received in a pre-determined amount of time and after issuing a predetermined number of queries for the resource record, to invalidate the resource record at the client.

18 (Canceled).

19. (Original) The apparatus of claim 17, wherein the invalidation mechanism is configured to:

receive a multicast message from a second client querying a second device;

locate a second resource record associated with the second device;

wait for a multicast response to the multicast query; and

if after a pre-determined number of queries the multicast response to the multicast query is not received in the pre-determined amount of time, to invalidate the second resource record.

20. (Canceled)

21. (Original) The apparatus of claim 17, wherein if the response to the query is not received in a pre-determined amount of time, the invalidation mechanism is additionally configured to:

retrieve a parent record of the resource record at the client, wherein the parent record refers to the resource record;

issue a query for the parent record;

wait for a response to the query from the device; and

if the response to the query is not received in a pre-determined amount of time, to invalidate the parent record, and to then repeat the above process by applying it recursively to any records that refer to the now-invalidated parent record.

22. (Original) The apparatus of claim 17, further comprising an updating mechanism, wherein if the response to the query is not received in a pre-determined amount of time, the updating mechanism is configured to:

retrieve a parent record of the resource record at the client, wherein the parent record refers to the resource record;

issue a query for the parent record;

receive a response to the query from the device, wherein the response includes information for updating the resource record; and to

update the resource record with the information received in the response.

23. (Original) The apparatus of claim 22, wherein the updating mechanism is additionally configured to update the parent record with the information received in the response.

24. (Original) The apparatus of claim 17, wherein the apparatus is invoked at a pre-specified time interval.

25–34. (Canceled)

35. (Previously Presented) The method of claim 1 wherein invalidating the resource record further comprises invalidating a child resource record of the resource record.

36. (Previously Presented) The computer-readable storage medium of claim 9, wherein invalidating the resource record further comprises invalidating a child resource record of the resource record.

37. (Previously Presented) The apparatus of claim 17, wherein invalidating the resource record further comprises invalidating a child resource record of the resource record.

38-39. (Cancelled)

40. (New) A method for validating a resource record in a local cache at a client computer system, comprising:

receiving a request to use a service;

looking up a service record for the service in a cache;

looking up an address record referenced by the service record and using a host address and a port number in the address record to send a query to the service on the network;

if the service responds within a predetermined time, using the service;

if the service does not respond within the predetermined time, resending the query to the service until the service responds, at which time the service is used, or until a predetermined number of queries has been sent;

upon sending the predetermined number of queries without receiving a response, marking the address record referenced by the service record as suspect, and querying for a new address record for the service by:

sending a multicast query requesting the address record on the network and waiting a predetermined time for a response;

if the service responds, updating address record with address information included in the response;

if the service does not respond after a predetermined time and after resending the query a predetermined number times:

deleting the address record.

marking the service record as suspect; and

sending a multicast query for the service record on the network and waiting for a response;

if a response is received, updating the cache and using the service;

otherwise, if no response is received, deleting the service record from the cache.